THERMAL PRODUCTS INC.
Engineered Solutions To Industrial Applications

Schmidt

AN API HEAT TRANSFER COMPANY

SCHMIDT® SIGMAWIG ALL WELDED PLATE HEAT EXCHANGERS

Thermal Products, Inc. / Phone: (518) 877-0231 / Email: sales@thermalproducts.com / Website: www.thermalproducts.com

When it comes to **Industrial Markets,** you need someone who understands your unique heat transfer needs - from fluid properties to fouling tendencies, a partner who can take that knowledge, and transform it into the **optimum heat transfer system.**

A partner who is committed to you before, during, and after the sale.
A partner like **API Heat Transfer.**
For more than 140 years, we've created heat transfer solutions for some of the most challenging chemical and industrial applications, and we're ready to help take the performance of you application to the next level!

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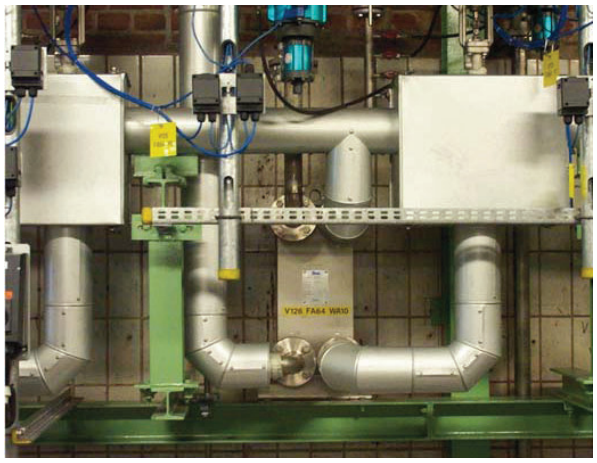
SIGMAWIG – opens up new fields of application

SIGMA plate heat exchangers are recognized world-wide for quality and reliability in thermal processes such as cooling, heating, pasteurising, evaporation and condensation. To meet the increasing requirements for plate heat exchangers in special applications, a new type of plate heat exchangers without gaskets called SIGMA**WIG** was developed particularly for:

- Chemical industry
- Pharmaceutical industry
- Industrial cooling
- Heat balancing systems



SIGMA**WIG** ST12 in a heating-cooling circuit for tempering of chemical reactor

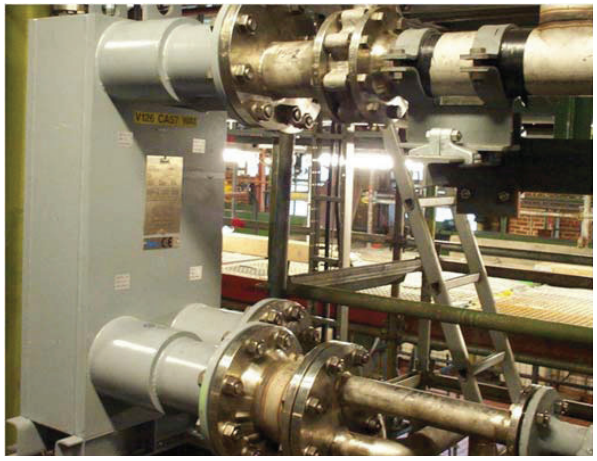
The SIGMA**WIG** construction makes it possible to noticeably extend the application of plate heat exchangers in respect of new media, temperatures and operating pressures. Especially media with aggressive or environmentally dangerous potential can be controlled with this new gasket-free plate heat exchanger design.

TIG welding seams without filler eliminate the risks of leakage and diffusion. That is why more and more SIGMA**WIG** are used, where operational dependability is indispensable:

- Control of chemical reaction processes
- Temperature equalization of intermediate and final products
- Cooling, heating or condensation of solvents
- Cooling and heating of DEMI-water
- Heat recovery in chemical or refining processes
- Evaporation / condensation of refrigerants

SIGMA**WIG** in standard design can be applied for operating pressures of up to 25 bar and operating temperatures of up to 250 °C.

Special design for higher pressures and temperatures and in special alloys are available.



SIGMA**WIG** ST30 for steam condensation

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SIGMAWIG – the all welded plate heat exchanger

Technical details

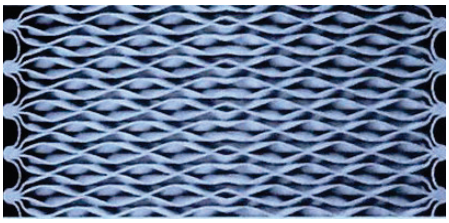
SIGMA**WIG** all welded plate heat exchangers are similar to gasketed plate heat exchangers because of the number of corrugated plates and do not include gaskets. The plates are sealed hermetically by TIG welded seams. The loading capacity of these connection exceeds the strength of gaskets.

The fishbone geometry of the flow channels built by the plates effects high turbulences on the fluids, which result in optimum heat transfer. The countercurrent flow arrangement allows most efficient heat transfer.

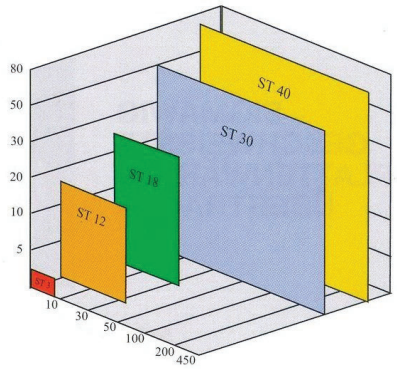
The welded plate pack is clamped into a pressure frame. Standard connections are flanges and threads.

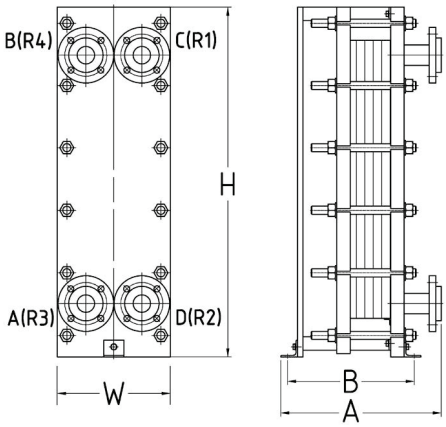
For the standard product line, all parts in contact with the product are made of stainless steel and free of nonferrous metal.

Special alloys are possible, too.



Cross section of plate pack





Main dimensions SIGMA**WIG**

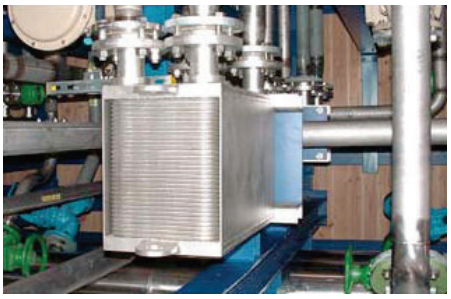
	Nozzle Size	Max. Operating Pressure *)	Min. Operating Temperature *)	Min. Operating Temperature *)	Max. Flow Rate (Liquid)	Max. Exchange Surface	Max. Length A	Max. Length B	Width W	Height H
Units	[DN]	[bar]	[°C]	[°C]	[m³/h]	[m²]	[mm]	[mm]	[mm]	[mm]
ST 3	25	25	250	-120	8,5	2,7	600	325	108	303
ST 12	50	25	250	-120	35	16,5	686	576	335	790
ST 18	50	25	250	-120	35	25	686	576	335	1035
ST 30	100/150	25	250	-120	450	60	1385	935	550	1180
ST 40	100/150	25	250	-120	450	90	1385	935	550	1480

*) variations on request

SIGMAWIG – the optimal choice for critical process parameters

Advantages	By Competence
Weldings replace gaskets	Higher security level at critical process conditions
Temperatures ≥ 250 °c	e.g., Steam, thermal oil edible oil
Operating pressures ≥ 25 bar	e.g., Condensation of refrigerants high pressure heating or low temperature networks
Compact design	Minimum space required, minimum installation, minimum piping
Efficient heat transfer	Homogeneous countercurrent flow
Small liquid content	Optimized control of process, higher level of security, when handling dangerous products
10,000 Times proven	Proven design, long-term experience in practice in a wide field of applications

SIGMA**WIG** ST40 tempering of chemical reactor / Bayer Chemicals, Leverkusen



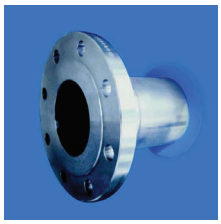
SIGMA**WIG** ST12 tempering of chemical reactor thermo-oil / ethylenglycol

Compact reactor heating-cooling module

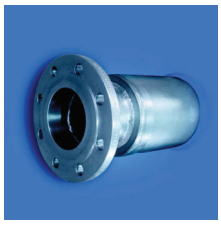
SIGMAWIG – one application out of a vast multitude

More than 10.000 SIGMA**WIG** prove under tough process conditions

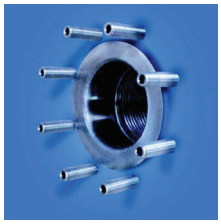
SIGMAWIG – main connection types



STANDARD FLANGED CONNECTION
Availability of a variety of flanges—ranging from standards such as EN 1092 to ASME 16.5 as well as a number of other standards upon request.



FLANGED CONNECTION WITH INTERNAL EXPANSION JOINTS
A construction for applications with frequent temperature changes that is proven in more than 1,000 installations.



STUDDED PORT WITH O-RING SEALING BETWEEN PLATE PACK AND PRESSURE FRAME
The advantages of this connection type are not only in its cost efficiency but also in the possibility to change or extend the plate pack on site. Especially where nonstandard plate materials are required, this construction offers an economical solution while allowing higher nozzle loads and higher temperature changes.

Successful solutions

Schmidt® Plate Heat Exchangers

Our Schmidt® line of plate heat exchangers are well-known for their high level of efficiency, flexibility for future duty changes, high level of operational safety, and the possibilities for CIP or mechanical cleaning.

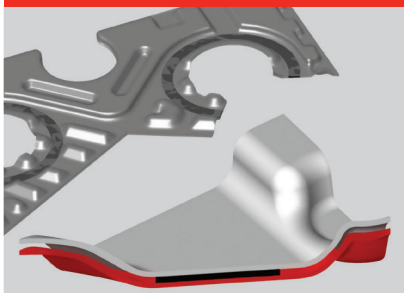
SIGMA gasketed plate and frame

Proprietary, high-efficiency corrugated plates resulting in the highest overall heat transfer rate by assuring highly turbulent flow and excellent fluid distribution across the entire surface.

SIGMA**DUAL** semi-welded

Advanced laser welding seals two plates together. The resulting plate pack has fully serviceable alternating plate channels while maintaining the integrity of the welded plate pair. Especially suited for critical fluids and gases where fluid loss is not acceptable.

SIGMA**TWIN** double-wall



Achieves the specific safety demands of critical applications where cross contamination of fluids is completely unacceptable. Should a hole or crack develop in a plate, leakage escapes into the gap between the two plates and can be readily seen by visual inspection.

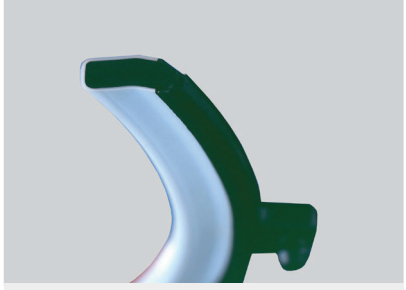
SIGMA**WIG** all-welded

Compact, rugged gasket-free plate design provides exceptional corrosion resistance and high efficiency in a counter-current flow configuration.

SIGMA**SHELL** plate and shell

Unique combination of a high pressure shell and a compact, high-efficiency laser welded plate pack. Shell side closures can be all welded or removable for visual inspection and cleaning. Flexible connection sizes also make it ideal for gas phase applications.

SIGMA**COAT** PTFE enveloped gasket



These PTFE enveloped elastomeric gaskets can improve operating times, safety and reliability. Make a quick and easy gasket change with the SIGMAFIX adhesive free gasketing system. High chemical resistance to aggressive media up to 338°F (170°C).

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API Heat Transfer, a family of high-performance brands

High-performance heat transfer.

It's who we are and what we do. It's part of our 140-year heritage designing and delivering world-class heat transfer products for nearly every industry. It's bolstered by our worldwide network of manufacturing facilities that provide sales, service, and support. And it's ingrained in a process that has helped customers around the world for nearly a century and a half.

When you work with us, you'll find the performance of our technologies sets the bar for heat transfer products, and our relentless drive to find and create custom heat transfer solutions to meet any industry challenge sets us apart.

See how our performance can improve yours.

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